

## REMARKS/ARGUMENTS

### **I. Rejection of Claims Under 35 USC §102**

The Office rejected claims 1-2, 4-10, 13, 16-19 as being anticipated under 35 USC §102(b) by US4849091 to Cabrera et al. The applicant respectfully disagrees.

As amended, claims 1, 12, and 13 each expressly require a "...continuous reactor vessel having first section that is coupled to a second section via a tapered transition portion..." and further requires that the sections are configured such that "...the oxygen-containing gas has a residence time in the first section...such that a ratio of carbon monoxide from the carbon-contaminated catalyst to carbon dioxide produced from the carbon monoxide is at least 9:1..."

These elements are not taught by Cabrera. On the contrary, Cabrera teaches a nested configuration in which the first section (7 and 8 of Figure 1) is disposed within the second section. Furthermore, Cabrera also teaches a CO<sub>2</sub>:CO ratio in the first section of between 0.7 to 2.0, which is entirely inconsistent to the claimed subject matter. Therefore, in light of the amendments presented herein, the rejection of claims 1-2, 4-10, 13, 16-19 as being anticipated by Cabrera et al. should be withdrawn.

### **II. Rejection of Claims Under 35 USC §103**

The Office rejected claim 15 as being obvious under 35 USC §103 over US4849091 to Cabrera et al. The applicant again respectfully disagrees.

First, as already noted above, the cited reference fails to teach the elements as presently claimed. It should also be noted that there is no suggestion or motivation in Cabrera to modify the teachings such as to arrive at the presently claimed subject matter. Indeed, Cabrera expressly teaches against the continuous reactor configuration as can be taken from column 10, lines 9-13. Moreover, from the discussion of oxygen requirements and on column 9, lines 33-48, it is also readily apparent that Cabrera requires a 'balanced approach' between excess oxygen to complete the regeneration reaction and insufficient oxygen to reduce the temperature. Based on these requirements, Cabrera teaches that a CO<sub>2</sub>:CO ratio of 0.7 to 2.0 in the first section is the optimum condition. Still further, Cabrera also expressly teaches that due to his initial separation of catalyst within the reactor, operation of the upper section of the regenerator is possible at

higher gas velocities, which is contrary to the claimed subject matter. Finally, the office noted that the temperature conditions of claim 15 would be simply arrived at using determination of optimum working conditions. The applicant respectfully disagrees. The claimed temperatures allow would operation of the regenerator using conventional heat resistant steel construction and thus do not require expensive refractory materials, which has heretofore not been considered. Thus, in light of the amendments and arguments, the rejection of claim 15 as being obvious over Cabrera is improper and should be withdrawn.

The Office rejected claims 3, 12, and 14 as being obvious under 35 USC §103 over Cabrera et al. in view of US 4991521 to Green and US 4313848 to Scott. The applicant again respectfully disagrees.

Once more, and as already noted above, the Cabrera reference fails to teach all of the elements as presently claimed, and Green and Scott fail to remedy these defects. Moreover, it is noted that Cabrera expressly teaches against configurations as taught by Green and Scott (e.g., column 10, lines 9-13). Thus, the proposed modification of Cabrera's device using elements of Green and Scott is improper and the rejection of claims 3, 12, and 14 as being obvious over Cabrera et al. in view of Green and Scott should be withdrawn.

The Office rejected claims 11 and 20 as being obvious under 35 USC §103 over Cabrera et al. in view of Scott. The applicant once more respectfully disagrees.

As noted above, Cabrera reference fails to teach all of the elements as presently claimed, and Scott fails to remedy these defects. Still further, it is noted that Cabrera expressly teaches against configurations as taught by Scott (e.g., column 10, lines 9-13), and so fails to provide any motivation for the modification as proposed by the office. Consequently, the rejection of claims 11 and 20 as being obvious over Cabrera et al. in view of Scott is improper and should be withdrawn.


**Request For Allowance**

Claims 1-20 are pending in this application. The applicant requests allowance of all pending claims.

Respectfully submitted,  
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